

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: LEE, RIP A. Examiner #: 78680 Date: 07-12-2004
 Art Unit: _____ Phone Number 30 _____ Serial Number: 10/679,239
 Mail Box and Bldg/Room Location: _____ Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

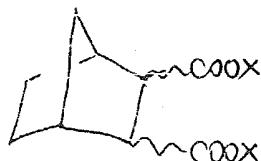
Title of Invention: NUCLEATING ADDITIVE FORMULATIONS

Inventors (please provide full names): MANNION, Michael J.
JONES, Jeffrey R.

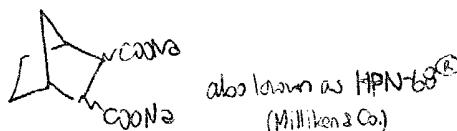
Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

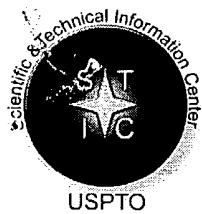
Please search polymer compositions containing bicyclo [2.2.1] heptane dicarboxylic acid derivatives (norbornane)



*inorganic
fragment*
 $X = H, \text{organic, cation (i.e., } Na^+ \text{)}$



STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher:	<u>K. Fuller</u>	NA Sequence (#)	STN <input checked="" type="checkbox"/>
Searcher Phone #:	_____	AA Sequence (#)	Dialog _____
Searcher Location:	_____	Structure (#)	Questel/Orbit _____
Date Searcher Picked Up:	_____	Bibliographic	Dr. Link _____
Date Completed:	<u>7/14/04</u>	Litigation	Lexis/Nexis _____
Searcher Prep & Review Time:	<u>20</u>	Fulltext	Sequence Systems _____
Clerical Prep Time:	_____	Patent Family	WWW/Internet _____
Online Time:	<u>25</u>	Other	Other (specify) _____



STIC Search Report

EIC 1700

STIC Database Tracking Number: 126969

TO: Rip A Lee
Location: REM 10A24
Art Unit : 1713
July 14, 2004

Case Serial Number: 10/679239

From: Kathleen Fuller
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov

Search Notes



STIC Search Results Feedback Form

EIC1700

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

➤ *I am an examiner in Workgroup:* *Example: 1713*

➤ *Relevant prior art found, search results used as follows:*

102 rejection
 103 rejection
 Cited as being of interest.
 Helped examiner better understand the invention.
 Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

Foreign Patent(s)
 Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ *Relevant prior art not found:*

Results verified the lack of relevant prior art (helped determine patentability).
 Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28



=> set cost off
SET COMMAND COMPLETED

=> file reg
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 13 JUL 2004 HIGHEST RN 709042-93-3
DICTIONARY FILE UPDATES: 13 JUL 2004 HIGHEST RN 709042-93-3

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
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<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file hcasp1u
'HCASP1U' IS NOT A VALID FILE NAME
SESSION CONTINUES IN FILE 'REGISTRY'
Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files
that are available. If you have requested multiple files, you can
specify a corrected file name or you can enter "IGNORE" to continue
accessing the remaining file names entered.

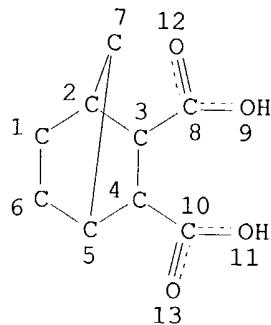
=> file hcapl
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FILE COVERS 1907 - 14 Jul 2004 VOL 141 ISS 3
FILE LAST UPDATED: 13 Jul 2004 (20040713/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> d que
L3 STR



243 structures from
the query

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE

L6 243 SEA FILE=REGISTRY SSS FUL L3
 L7 58 SEA FILE=REGISTRY ABB=ON L6 AND PMS/CI
 L12 18 SEA FILE=HCAPLUS ABB=ON L7
 L13 0 SEA FILE=HCAPLUS ABB=ON L12 AND NUCLE?
 L14 3 SEA FILE=HCAPLUS ABB=ON L12 AND (THERMOPLAS? OR POLYOLEFIN?
 OR POLYPROPYLENE OR PP OR PE OR POLYETHYLENE OR POLYBUTYLENE)
 L15 3 SEA FILE=HCAPLUS ABB=ON L13 OR L14
 L16 168 SEA FILE=HCAPLUS ABB=ON L6
 L17 17 SEA FILE=HCAPLUS ABB=ON L16 AND NUCLE?
 L18 6 SEA FILE=HCAPLUS ABB=ON L6(L)MOA/RL
 L19 6 SEA FILE=HCAPLUS ABB=ON L17 AND (PLASTIC? OR POLYMER?)/SC, SX
 L20 11 SEA FILE=HCAPLUS ABB=ON L16 AND (THERMOPLAS? OR POLYOLEFIN?
 OR POLYPROPYLENE OR PP OR PE OR POLYETHYLENE OR POLYBUTYLENE)
 L21 11 SEA FILE=HCAPLUS ABB=ON L15 OR (L18 OR L19 OR L20)

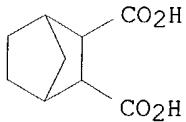
58 polymers

=> d 121 all hitstr 1-11



L21 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:1007880 HCAPLUS
 DN 140:43158
 ED Entered STN: 28 Dec 2003
 TI Bimolecular nucleation methods for thermoplastics
 IN Dotson, Darin L.; Mehl, Nathan A.; Burkhart, Brian M.; Xu, Jiannong
 PA USA
 SO U.S. Pat. Appl. Publ., 12 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C08K005-09
 ICS C08K005-04
 NCL 524285000; 524394000
 CC 37-6 (Plastics Manufacture and Processing)
 FAN.CNT 1

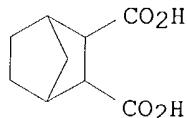
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003236332	A1	20031225	US 2002-172338	20020614
PRAI	US 2002-172338		20020614		
OS	MARPAT 140:43158				
AB	<p>Specific methods of inducing high nucleation rates in thermoplastics, such as polyolefins, and particularly, though not necessarily, polypropylenes, through the introduction of two different compds. that are substantially soluble within the target molten thermoplastic resin (such as, as one non-limiting example, an added compound including at least one acid group and an added organic salt) are provided. Such introduced components react to form a nucleating agent in situ within such a target molten thermoplastic resin which is then allowed to cool. Preferably, one compound is an acid, preferably bicyclic (i.e., two cyclic systems sharing at least three carbon atoms) or monocycloaliph. (i.e., a single, saturated ring system) in nature, such as, without limitation, bicyclo[2.2.1]heptane dicarboxylic acid or hexahydrophthalic acid, and the other compound is an organic salt, such as a carboxylate, sulfonate, phosphate, oxalate, and the like, and more preferably selected from the group consisting of metal C 8 -C 22 esters. Such a production method thus provides a manner of generating in situ the desired nucleating agent through reaction of such soluble compds. Kits (e.g., masterbatch methods, for example) comprising such components for easy introduction within target molten polyolefin resins are also contemplated within this invention. Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid and Ca stearate were used in nucleation of polypropylene.</p>				
ST	thermoplastic crystal nucleation agent bimol				
IT	Crystal nucleating agents (bimol. nucleation methods for thermoplastics)				
IT	Polyolefins RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses) (bimol. nucleation methods for thermoplastics)				
IT	Plastics, uses RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses) (thermoplastics ; bimol. nucleation methods for thermoplastics)				
IT	557-05-1 822-16-2, Sodium Stearate 1592-23-0 1687-30-5, Hexahydrophthalic acid 1724-08-9, Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid 3853-88-1 4485-12-5, Lithium Stearate RL: MOA (Modifier or additive use) ; USES (Uses) (bimol. nucleation methods for thermoplastics)				
IT	9003-07-0, Polypropylene 9010-79-1, Ethylene-propylene copolymer 25085-53-4, Profax 6301 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses) (bimol. nucleation methods for thermoplastics)				
IT	1724-08-9, Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid RL: MOA (Modifier or additive use) ; USES (Uses) (bimol. nucleation methods for thermoplastics)				
RN	1724-08-9 HCAPLUS				
CN	Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid (9CI) (CA INDEX NAME)				



L21 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:837152 HCAPLUS
 DN 139:324226
 ED Entered STN: 24 Oct 2003
 TI Highly **nucleated** syndiotactic **polypropylene** and its production
 IN Dotson, Darin L.
 PA Milliken & Company, USA
 SO PCT Int. Appl., 24 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C08F110-06
 ICS C08K005-15; C08K003-00; C08K005-09; C08K005-10; C08K005-12
 CC 37-6 (**Plastics** Manufacture and Processing)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003087175	A1	20031023	WO 2003-US10522	20030407
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003199658	A1	20031023	US 2002-121224	20020412
	US 6703434	B2	20040309		
	US 6642290	B1	20031104	US 2002-121400	20020412
	US 2003236344	A1	20031225	US 2003-606006	20030625
	US 2004010107	A1	20040115	US 2003-609080	20030627
PRAI	US 2002-121224	A	20020412		
	US 2002-121400	A	20020412		
OS	MARPAT	139:324226			
AB	The presence of certain novel nucleating agents within molten syndiotactic resins permits the resultant molten mixture to cool into a selected shape or configuration. These nucleating agents are new classes of hyper- nucleators , bicyclic or monocyclic dicarboxylic acid salts that promote crystallization within syndiotactic resins at				
	levels well above any previously disclosed nucleators . The title polypropylene containing 0.25% cis calcium hexahydrophthalate showed a peak crystallization temperature 77° and flexural modulus 944 MPa; vs. 64 and 844, resp., for Na benzoate.				
ST	hexahydrophthalate calcium salt nucleator syndiotactic polypropylene				

IT Crystal **nucleating** agents
 (nucleating agents for syndiotactic **polypropylene**)
 IT 23838-83-7P 491589-22-1P
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use);
 ; PREP (Preparation); USES (Uses)
 (nucleating agents for syndiotactic **polypropylene**)
 IT 26063-22-9, Syndiotactic **polypropylene**
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); PROC (Process)
 (nucleating agents for syndiotactic **polypropylene**)
 IT 23838-82-6
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reduction; nucleating agents for syndiotactic
polypropylene)
 RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Zhao; US 20030073764 A1 2003
 IT 23838-83-7P
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use);
 ; PREP (Preparation); USES (Uses)
 (nucleating agents for syndiotactic **polypropylene**)
 RN 23838-83-7 HCPLUS
 CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (9CI) (CA
 INDEX NAME)



●2 Na

L21 ANSWER 3 OF 11 HCPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:154516 HCPLUS
 DN 138:205801
 ED Entered STN: 28 Feb 2003
 TI Clarified **thermoplastics** exhibiting very high **nucleation**
 efficacy
 IN Zhao, Xiaodong E.
 PA Milliken & Company, USA
 SO PCT Int. Appl., 42 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C09J105-00
 ICS C08K005-04; C08K005-09; C08K005-15
 CC 37-2 (**Plastics** Manufacture and Processing)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003016421	A1	20030227	WO 2002-US24354	20020801
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,			

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG

US 2003073764 A1 20030417 US 2001-927710 20010811
US 6585819 B2 20030701

PRAI US 2001-927710 A 20010811
OS MARPAT 138:205801

AB Certain **thermoplastic** additives (combinations of clarifying and **nucleating** compds.) that induce simultaneously low clarity and high **nucleation** efficacy are provided. Such additives include combinations of certain bicyclic salts (which by themselves induce very high **nucleation** efficacy) and **thermoplastic** clarifying agents, including certain dibenzylidene sorbitol acetals and derivs. (DBSs) (which alone provide very low haze measurements and thus highly desirable clarity characteristics). In comparison, other types of standard **thermoplastic nucleators**, such as sodium benzoate and sodium 2,2'-methylenebis(4,6-di-tert-butylphenyl) phosphate provide relatively high peak crystallization temps., but do not combine synergistically with clarifiers, such as DBSs, to provide the same results as for the inventive combination of bicyclic salts and DBSs. **Thermoplastic** compns. as well as **thermoplastic** additive packages comprising such inventive **nucleator** compds., as well as methods of producing **polypropylene** compns. and articles made therefrom, are also contemplated within this invention.

ST clarifier bicyclic salt dibenzylidene sorbitol acetal
thermoplastic nucleating agent

IT Alditols
RL: MOA (Modifier or additive use); USES (Uses)
(acetals; manufacture of bicyclic salt- and sorbitol acetal-containing **nucleation** agents for **thermoplastics** with improved clarity)

IT Acetals
RL: MOA (Modifier or additive use); USES (Uses)
(alditol-based; manufacture of bicyclic salt- and sorbitol acetal-containing **nucleation** agents for **thermoplastics** with improved clarity)

IT Crystal **nucleating** agents
(bicyclic salt- and sorbitol acetal-containing **nucleation** agents for **thermoplastics** with improved clarity)

IT Plastics, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**thermoplastics**; bicyclic salt- and sorbitol acetal-containing **nucleation** agents for **thermoplastics** with improved clarity)

IT 25085-53-4, Profax 6301 486404-34-6, Indelpro SA 49F
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(bicyclic salt- and sorbitol acetal-containing **nucleation** agents for **thermoplastics** with improved clarity)

IT 19046-64-1 80124-42-1, 1,3:2,4-Di(p-ethylbenzylidene)sorbitol
81541-12-0, Millad 3940 81541-15-3 82203-22-3 82203-23-4,
1,3:2,4-Di(p-chlorobenzylidene)sorbitol 135861-56-2, Millad 3988
403842-20-6 403842-21-7 403842-25-1 461425-64-9 461425-65-0

461425-66-1 461425-67-2 461425-68-3 461425-69-4 461425-70-7
461425-71-8 461425-73-0 461425-74-1 461425-77-4 461425-78-5
461425-81-0 461425-85-4 464178-05-0 464178-06-1 464178-14-1
464178-15-2 464178-21-0 464178-22-1 464178-23-2 464178-24-3
464178-25-4 464178-26-5 464178-32-3 464178-33-4 464178-34-5
464178-35-6 464178-36-7 464178-40-3 464178-41-4 464178-46-9
464178-48-1 464178-49-2 464178-50-5 464178-51-6 464178-52-7
464178-54-9 485803-67-6 485803-68-7 485803-76-7 485803-77-8
486403-39-8 486403-50-3 499792-99-3 499793-00-9 499793-02-1
499793-03-2 499793-04-3 499793-05-4 500023-41-6

RL: MOA (Modifier or additive use); USES (Uses)
(manufacture of bicyclic salt- and sorbitol acetal-containing nucleation
agents for thermoplastics with improved clarity)

IT 23838-83-7P

RL: IMF (Industrial manufacture); MOA (Modifier or additive use)
; PREP (Preparation); USES (Uses)
(nucleation agent; manufacture of bicyclic salt- and sorbitol
acetal-containing nucleation agents for thermoplastics
with improved clarity)

IT 23838-82-6

RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material for nucleation agent; manufacture of bicyclic
salt- and sorbitol acetal-containing nucleation agents for
thermoplastics with improved clarity)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

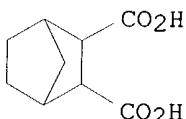
(1) Amos; US 5981636 A 1999 HCPLUS
(2) Rekers; US 5049605 A 1991 HCPLUS
(3) Zhao; US 6465551 B1 2002 HCPLUS

IT 23838-83-7P

RL: IMF (Industrial manufacture); MOA (Modifier or additive use)
; PREP (Preparation); USES (Uses)
(nucleation agent; manufacture of bicyclic salt- and sorbitol
acetal-containing nucleation agents for thermoplastics
with improved clarity)

RN 23838-83-7 HCPLUS

CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (9CI) (CA
INDEX NAME)



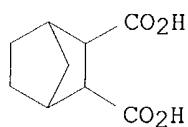
●2 Na

L21 ANSWER 4 OF 11 HCPLUS COPYRIGHT 2004 ACS on STN
AN 2002:907195 HCPLUS
DN 138:5098
ED Entered STN: 29 Nov 2002
TI Novel thermoplastic nucleating compounds
IN Zhao, Xiaodong Edward; Dotson, Darin L.; Burkhart, Brian M.; Jones,
Jeffrey R.

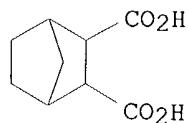
PA USA
 SO U.S. Pat. Appl. Publ., 7 pp., Cont.-in-part of U. S. Ser. No. 815,832.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C08K005-09
 ICS C07C061-12
 NCL 524285000; 562498000
 CC 37-6 (Plastics Manufacture and Processing)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002177642	A1	20021128	US 2001-8322	20011103
	US 6599968	B2	20030729		
	US 6465551	B1	20021015	US 2001-815832	20010324
	WO 2003040230	A1	20030515	WO 2002-US32411	20021009
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 2001-815832	A2	20010324		
	US 2001-8322	A	20011103		
OS	MARPAT 138:5098				
AB	Compds. and compns. comprising specific metal salts of bicyclo[2.2.1]heptane dicarboxylate salts in order to provide highly desirable properties within polyolefin articles are provided. The inventive salts and derivs. thereof are useful as nucleating and/or clarifying agents for such polyolefin , provide excellent crystallization temps., stiffness, and calcium stearate compatibility within target polyolefin . Also, such compds. exhibit very low hygroscopicity and therefore excellent shelf stability as powdered or granular formulations. Polyolefin additive compns. and methods of producing polyolefin with such compds. are also contemplated within this invention.				
ST	bicycloheptane dicarboxylate thermoplastic nucleating compd				
IT	Crystal nucleating agents (preparation of bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)				
IT	Plastics, uses RL: TEM (Technical or engineered material use); USES (Uses) (thermoplastics ; preparation of bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)				
IT	476677-40-4P RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (intermediate; preparation of bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)				
IT	1724-08-9P, Bicyclo[2.2.1]heptane-2,3-dicarboxylic Acid 465508-50-3P 465508-55-8P 465508-60-5P 466646-10-6P 466646-11-7P				

RL: IMF (Industrial manufacture); MOA (Modifier or additive use)
; PREP (Preparation); USES (Uses)
(nucleating agent; preparation of bicyclo[2.2.1]heptane
dicarboxylate salt nucleating agents for
thermoplastic articles)
IT 7440-05-3, Palladium, uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of bicyclo[2.2.1]heptane dicarboxylate salt nucleating
agents for thermoplastic articles)
IT 25085-53-4, Profax 6301
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(preparation of bicyclo[2.2.1]heptane dicarboxylate salt nucleating
agents for thermoplastic articles)
IT 9003-07-0, Polypropylene
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(preparation of bicyclo[2.2.1]heptane dicarboxylate salt nucleating
agents for thermoplastic articles)
IT 57-88-5, Cholesterol, reactions 112-92-5, Stearyl alcohol 1310-65-2,
Lithium hydroxide 1310-73-2, Sodium hydroxide, reactions 2746-19-2,
Himic anhydride 6004-79-1, Bicyclo[2.2.1]heptane-2,3-dicarboxylic
anhydride 8014-95-7, Fuming sulfuric acid 9003-13-8,
Poly(propyleneoxide monobutylether 23838-83-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; preparation of bicyclo[2.2.1]heptane dicarboxylate salt
nucleating agents for thermoplastic articles)
IT 1724-08-9P, Bicyclo[2.2.1]heptane-2,3-dicarboxylic Acid
465508-50-3P 465508-55-8P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use)
; PREP (Preparation); USES (Uses)
(nucleating agent; preparation of bicyclo[2.2.1]heptane
dicarboxylate salt nucleating agents for
thermoplastic articles)
RN 1724-08-9 HCAPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid (9CI) (CA INDEX NAME)

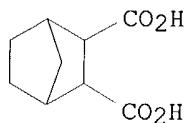


RN 465508-50-3 HCAPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, monosodium salt (9CI) (CA
INDEX NAME)



● Na

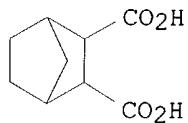
RN 465508-55-8 HCAPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, lithium sodium salt (9CI)
(CA INDEX NAME)



● Li

● Na

IT 23838-83-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; preparation of bicyclo[2.2.1]heptane dicarboxylate salt
nucleating agents for **thermoplastic** articles)
RN 23838-83-7 HCAPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (9CI) (CA
INDEX NAME)



●2 Na

L21 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:906118 HCAPLUS
DN 138:5089
ED Entered STN: 29 Nov 2002
TI Novel highly versatile **thermoplastic nucleators**

IN Zhao, Xiaodong Edward; Dotson, Darin L.
 PA Milliken & Company, USA
 SO PCT Int. Appl., 34 pp.
 CODEN: PIXXD2

DT Patent

LA English

IC ICM C07C061-12

ICS C08K005-04; C08K005-09

CC 37-6 (Plastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002094759	A1	20021128	WO 2002-US6418	20020304
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003008956	A1	20030109	US 2001-864460	20010523
	US 6559211	B2	20030506		
	EP 1389178	A1	20040218	EP 2002-725063	20020304
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2003096895	A1	20030522	US 2002-288040	20021105
PRAI	US 2001-864460	A	20010523		
	WO 2002-US6418	W	20020304		

OS MARPAT 138:5089

AB Bicyclic compound **nucleating** agents are reported which induces a peak crystallization temperature of $\geq 125^\circ$ for formulation of **polypropylene** with d. .apprx.0.9 g/cm³, melt flow 12 g/10 min, Rockwell hardness .apprx.90, tensile strength 4931 psi, elongation at yield .apprx.10%, flexural modulus 203 ksi, Izod impact strength 0.67 ft-lb/in, and deflection temperature at 0.46 mPa of .apprx.93 $^\circ$. Thus, a mixture of 1000 g **polypropylene**, 500 ppm Irganox 1010, 1000 ppm Irgafos 168, 800 ppm calcium stearate, and 1000 ppm disodium bicyclo[2.2.1]heptane-2,3-dicarboxylate (I) was compounded using single-screw extruder at 204-232 $^\circ$ and injection molded into plaques with peak crystallization temperature 126 $^\circ$ and haze 34%, compared with 110 $^\circ$ and 68%, resp., for the sample obtained without I.

ST bicyclic compd **nucleation** agent **polypropylene**;
 disodium bicycloheptanedicarboxylate **nucleation** agent
polypropylene

IT Polyesters, uses

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(bicyclic compound **nucleation** agents for)

IT Crystal **nucleating** agents

(disodium and calcium bicycloheptanedicarboxylates; for
polypropylene with high peak crystallization temperature)

IT 1592-23-0, Calcium stearate

RL: MOA (Modifier or additive use); USES (Uses)

(acid scavengers; bicyclic compound **nucleation** agents for
polypropylene with high peak crystallization temperature containing)

IT 25085-53-4, Profax 6301

RL: POF (Polymer in formulation); TEM (Technical or engineered material

use); USES (Uses)
(bicyclic compound **nucleation** agents for)

IT 23838-83-7 465508-47-8

RL: **MOA (Modifier or additive use)**; USES (Uses)
(**nucleation** agents; for **polypropylene** with high
peak crystallization temperature)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

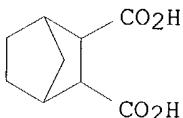
- (1) Amos; US 5929146 A 1999 HCPLUS
- (2) Amos; US 5981636 A 1999 HCPLUS

IT 23838-83-7 465508-47-8

RL: **MOA (Modifier or additive use)**; USES (Uses)
(**nucleation** agents; for **polypropylene** with high
peak crystallization temperature)

RN 23838-83-7 HCPLUS

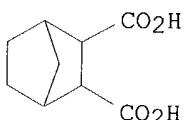
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (9CI) (CA
INDEX NAME)



●2 Na

RN 465508-47-8 HCPLUS

CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, calcium salt (1:1) (9CI) (CA
INDEX NAME)



● Ca

L21 ANSWER 6 OF 11 HCPLUS COPYRIGHT 2004 ACS on STN
AN 2002:754474 HCPLUS

DN 137:279981

ED Entered STN: 04 Oct 2002

TI Bicyclo[2.2.1]heptane dicarboxylate salt **nucleating** agents for
thermoplastic articles

IN Zhao, Xiaodong Edward; Dotson, Darin L.; Morin, Brian G.; Burkhart, Brian
M.; Cowan, Martin E.; Jones, Jeffrey R.

PA Milliken & Company, USA

SO PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DT Patent

LA English
 IC ICM C08K005-09
 ICS C08K005-092; C08K005-095; C08K005-098; C07C069-753
 CC 37-6 (Plastics Manufacture and Processing)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002077092	A1	20021003	WO 2002-US6493	20020305
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 6465551	B1	20021015	US 2001-815832	20010324
	US 6534574	B1	20030318	US 2001-995315	20011127
	EP 1373396	A1	20040102	EP 2002-725071	20020305
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	BR 2002008340	A	20040323	BR 2002-8340	20020305
	US 2001-815832	A	20010324		
	US 2001-995315	A	20011127		
	WO 2002-US6493	W	20020305		
OS	MARPAT 137:279981				
AB	Compds. and compns. comprising specific metal salts of bicyclo[2.2.1]heptane dicarboxylate salts in order to provide highly desirable properties within polyolefin articles are provided. The inventive salts and derivs. thereof are useful as nucleating and/or clarifying agents for such polyolefin , provide excellent crystallization temps., stiffness, and calcium stearate compatibility within target polyolefin . Also, such compds. exhibit very low hygroscopicity and therefore excellent shelf stability as powdered or granular formulations. Polyolefin additive compns. and methods of producing polyolefin with such compds. are also contemplated within this invention. Disodium bicyclo[2.2.1]heptane-2, 3-dicarboxylate was prepared and used as a nucleating agent for polypropylene .				
ST	bicycloheptane dicarboxylate salt nucleating agent thermoplastic				
IT	Crystal nucleating agents (bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)				
IT	Polyesters, properties Polyolefins Polypropene fibers, properties RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)				
IT	Plastics, properties RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (thermoplastics ; bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)				
IT	465508-47-8P 465508-50-3P 465508-53-6P 465508-55-8P 465508-60-5P 466646-10-6P 466646-11-7P				

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)

IT 1724-08-9P 23838-83-7P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)

IT 25038-59-9, Cleartuf 8006, properties 25085-53-4, Profax 6301
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)

IT 57-88-5, Cholesterol, reactions 2746-19-2, Himic anhydride 23838-82-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

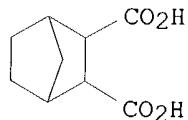
RE

(1) Amos; US 5922793 A 1999 HCPLUS
(2) Boelens; US 4442025 A 1984 HCPLUS
(3) Broekhof; US 4843061 A 1989 HCPLUS
(4) de Witt; US 3686361 A 1972
(5) Kolbl; US 4647581 A 1987 HCPLUS
(6) Ohtani; US 5047574 A 1991 HCPLUS
(7) Ruyter; US 3560411 A 1971 HCPLUS

IT 465508-47-8P 465508-50-3P 465508-53-6P
465508-55-8P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(bicyclo[2.2.1]heptane dicarboxylate salt nucleating agents for thermoplastic articles)

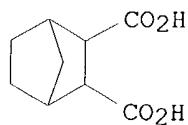
RN 465508-47-8 HCPLUS

CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, calcium salt (1:1) (9CI) (CA INDEX NAME)



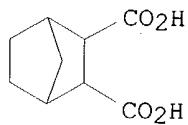
● Ca

RN 465508-50-3 HCPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, monosodium salt (9CI) (CA INDEX NAME)



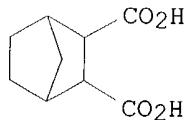
● Na

RN 465508-53-6 HCAPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, monolithium salt (9CI) (CA INDEX NAME)



● Li

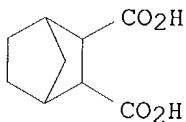
RN 465508-55-8 HCAPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, lithium sodium salt (9CI) (CA INDEX NAME)



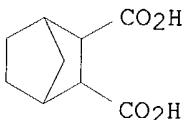
● Li

● Na

IT 1724-08-9P 23838-83-7P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use);
; RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent); USES
(Uses)
 (bicyclo[2.2.1]heptane dicarboxylate salt **nucleating** agents
 for **thermoplastic** articles)
RN 1724-08-9 HCAPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid (9CI) (CA INDEX NAME)



RN 23838-83-7 HCAPLUS
 CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, disodium salt (9CI) (CA
 INDEX NAME)



●2 Na

L21 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1994:511558 HCAPLUS
 DN 121:111558
 ED Entered STN: 03 Sep 1994
 TI Coating compositions containing polyesters and chlorinated polypropene
 IN Tanioku, Katsuzo; Tono, Tetsuji; Kubo, Keiji; Matsumoto, Mitsuo
 PA Arakawa Chem Ind, Japan; Kuraray Co
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D175-06
 ICS C09D123-28; C09D167-00; C09D175-04
 CC 42-8 (Coatings, Inks, and Related Products)
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06049411	A2	19940222	JP 1992-205638	19920731
JP 3203055	B2	20010827		
PRAI JP 1992-205638		19920731		

AB The compns. contain ≥40% polyesters having norbornylene or perhydro-1,4:5,8-dimethanonaphthylene units and chlorinated polypropene (10-70% Cl) in 97:3-30:70 ratio as well as 0-40 phr polyisocyanates. A mixture of 67.5 parts polyester prepared from 100 parts perhydro-1,4:5,8-dimethanonaphthalene-2,3-dicarboxylic acid, 30 parts perhydro-1,4:5,8-dimethanonaphthalene-2,3-dimethanol, and 70 parts 1,6-hexanediol, 13 parts chlorinated isotactic polypropene (30% Cl), 4 parts isophorone diisocyanate, and 30 parts TiO₂ was applied to a polypropene sheet to give a coating showing good adhesion and resistance to gasoline and alc. solvents.

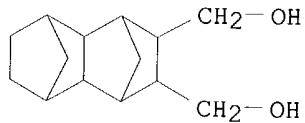
ST chlorinated polypropene polyester isocyanate coating; gasoline resistance coating chlorinated polypropene; alc resistance coating chlorinated polypropene; dimethanonaphthalene deriv polyester coating; naphthalene dimethano deriv polyester coating

IT Polyesters, uses

IT RL: USES (Uses)
(coatings containing chlorinated polypropene and, solvent-resistant)
Coating materials
(solvent-resistant, polyester-chlorinated polypropene-polyisocyanate
compns. as)
IT 156381-70-3
RL: USES (Uses)
(coating compns. containing chlorinated polypropene and, solvent-resistant)
IT 25085-53-4D, Isotactic **polypropylene**, chlorinated
RL: USES (Uses)
(coating compns. containing polycyclic polyesters and)
IT 156381-67-8 156381-68-9 **156381-69-0**
RL: USES (Uses)
(coatings containing chlorinated polypropene and, solvent-resistant)
IT 9003-07-0D, **Polypropylene**, chlorinated
RL: USES (Uses)
(coatings containing polycyclic polyesters and, gasoline- and
alc.-resistant)
IT 9003-07-0, **Polypropylene**
RL: USES (Uses)
(coatings for, solvent-resistant)
IT 156381-63-4P 156381-64-5P **156381-65-6P** 156381-66-7P
RL: PREP (Preparation)
(preparation of, for solvent-resistant coatings)
IT **156381-69-0**
RL: USES (Uses)
(coatings containing chlorinated polypropene and, solvent-resistant)
RN 156381-69-0 HCPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, polymer with
decahydro-1,4:5,8-dimethanonaphthalene-2,3-dimethanol,
2,2-dimethyl-1,3-propanediol and 2-ethyl-2-[[[(3-
isocyanatomethylphenyl)amino]carbonyl]oxy]methyl]-1,3-propanediyl
bis[(3-isocyanatomethylphenyl)carbamate] (9CI) (CA INDEX NAME)

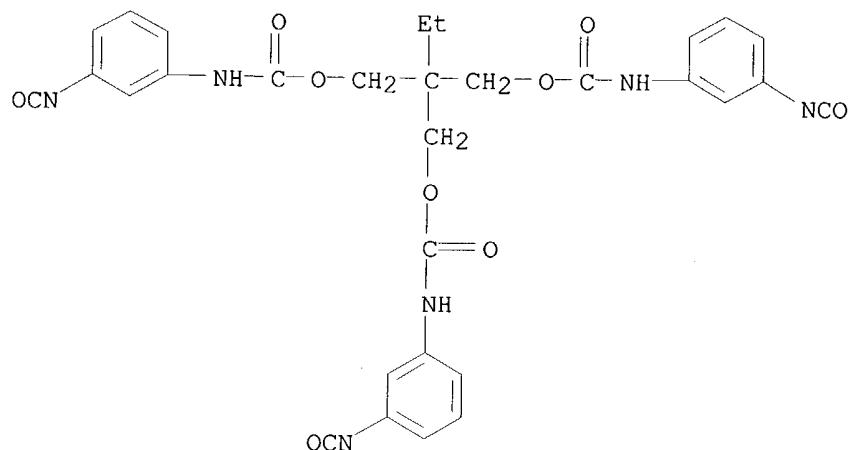
CM 1

CRN 37501-78-3
CMF C14 H22 O2



CM 2

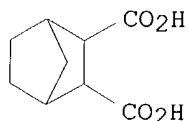
CRN 28805-80-3
CMF C33 H32 N6 O9
CCI IDS



3 (D1-Me)

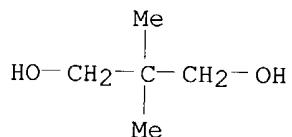
CM 3

CRN 1724-08-9
CMF C9 H12 O4



CM 4

CRN 126-30-7
CMF C5 H12 O2



IT 156381-65-6P

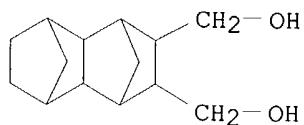
RL: PREP (Preparation)
(preparation of, for solvent-resistant coatings)

RN 156381-65-6 HCAPLUS

CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, polymer with
decahydro-1,4:5,8-dimethanonaphthalene-2,3-dimethanol and
2,2-dimethyl-1,3-propanediol (9CI) (CA INDEX NAME)

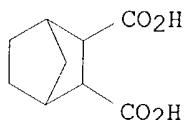
CM 1

CRN 37501-78-3
CMF C14 H22 O2



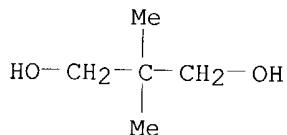
CM 2

CRN 1724-08-9
CMF C9 H12 O4



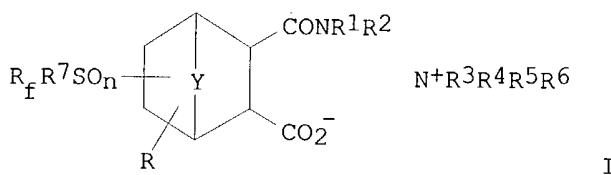
CM 3

CRN 126-30-7
CMF C5 H12 O2



L21 ANSWER 8 OF 11 HCPLUS COPYRIGHT 2004 ACS on STN
AN 1987:121679 HCPLUS
DN 106:121679
ED Entered STN: 17 Apr 1987
TI Compositions and uses of bicyclic aliphatic acid amine salts substituted with fluoroaliphatic thio, sulfinyl, or sulfonyl groups
PA Ciba-Geigy A.-G., USA
SO Jpn. Kokai Tokkyo Koho, 18 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C07C147-05
ICS C07C147-14; C07C149-26; D21H003-08
ICA C07C087-30; C07C091-26; C07D307-77
CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)
Section cross-reference(s): 24
FAN.CNT 1

PATENT NO.		KIND	DATE	APPLICATION NO.	DATE
PI	JP 60008255	A2	19850117	JP 1984-120076	19840613
	US 4515640	A	19850507	US 1983-503435	19830613
	EP 138748	A1	19850424	EP 1984-810280	19840607
	EP 138748	B1	19870121		
R: BE, CH, DE, FR, GB, IT, LI					
CA 1213587	A1	19861104	CA 1984-456317	19840611	
US 4590129	A	19860520	US 1985-692256	19850117	
PRAI US 1983-503435		19830613			
GI					



AB Compds. I are prepared which impart oil and water repellency to cellulosic and synthetic or natural polyamide materials. In I, Rf = C4-18 perfluoroalkyl or perfluoroalkoxyperfluoroalkyl; R7 = C1-12 alkylene, C2-12 alklenethioalkylene, C2-12 alkyleneoxyalkylene, or C2-12 alkyleneiminoalkylene (the imino N atom optionally containing C1-6 alkyl as the 3rd substituent); n = 0, 1, or 2; Y = lower alkylene or O; R1, R2 = H, lower alkyl, lower hydroxyalkyl, or NR1R2 = morpholino, R3, R4, R5 = H, lower alkyl, lower hydroxyalkyl; R6 = unsubstituted or OH-, CO2H-, or SO3H-substituted lower alkyl, benzyl, or NR3R4 = morpholino; R = H or Me, and RfR7SO_n groups are on the 5th or 6th position.

ST oil water repellent cellulose material; polyamide material oil water repellent; bicyclic aliphatic acid salt; fluorine compd water oil repellent

IT Bicyclic compounds

RL: USES (Uses)
(aliphatic amide acid amine salts containing fluorine and sulfur, oil- and water-repellents, for cellulosic and synthetic and natural polyamide materials)

IT Sizes
(bicyclic aliphatic amide acid amine salts containing fluorine and sulfur, for paper, water- and oil-repellent)

IT Polyamides, uses and miscellaneous

RL: USES (Uses)
(oil- and water-repellents for, bicyclic aliphatic amide acid amine salts containing fluorine and sulfur as)

IT Emulsifying agents
(**Polyethylene** propylene glycol, for bicyclic aliphatic amide acid amine salts containing fluorine and sulfur, for oil- and water-repellents)

IT Amines, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with fluorine- and sulfo-containing bicyclic aliphatic anhydrides)

IT Paper
(sizes for, containing bicyclic aliphatic amide acid amine salts containing fluorine and sulfur, water- and oil-repellent)

IT Waterproofing
(agents, oilproofing and, bicyclic aliphatic amide acid amine salts containing
fluorine and sulfur, for cellulosic and natural and synthetic polyamide materials)

IT Oilproofing
(agents, waterproofing and, bicyclic aliphatic amide acid amine salts containing fluorine and sulfur, for cellulosic and natural and synthetic polyamide materials)

IT Anhydrides
RL: USES (Uses)
(aliphatic, bicyclic, fluorine- and sulfo-containing, reaction of, with amines)

IT 107241-41-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(dehydration of)

IT 9003-11-6, Polyethylene propylene glycol
RL: USES (Uses)
(emulsifiers, Pluronic F-68, for bicyclic aliphatic amide acid amine salts containing fluorine and sulfur, for oil- and water-repellents)

IT 107163-28-0P 107241-40-7P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(manufacture and reaction of, with amines)

IT 107269-47-6
RL: USES (Uses)
(oil and water repellents, for cellulosic and natural and synthetic polyamide materials)

IT 34143-74-3, 1,1,2,2-Tetrahydroperfluorodecanethiol
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bicyclooctenedicarboxylic acid anhydride)

IT 4883-79-8 107163-29-1 107173-51-3 107241-39-4 107269-45-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with diethanolamine)

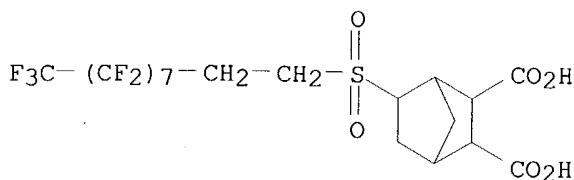
IT 77-86-1 108-18-9 110-91-8, reactions 110-97-4 111-42-2, reactions 124-68-5 141-43-5, reactions 4316-74-9 90191-92-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with fluorine- and sulfo-containing bicyclic aliphatic anhydrides)

IT 24327-08-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with tetrahydroperfluorodecanthiol)

IT 107241-41-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(dehydration of)

RN 107241-41-8 HCAPLUS

CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, 5-[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)sulfonyl]-1(or 6)-methyl- (9CI) (CA INDEX NAME)



D1-Me

IT 107269-47-6

RL: USES (Uses)

(oil and water repellents, for cellulosic and natural and synthetic polyamide materials)

RN 107269-47-6 HCAPLUS

CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 3-[[bis(2-hydroxyethyl)amino]carbonyl]-5(or 6)-[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)thio]-, [2-endo, 3-endo, 5(or 6)-exo]-, compd. with 2,2'-iminobis[ethanol] (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 111-42-2

CMF C4 H11 N O2



CM 2

CRN 107269-46-5

CMF C23 H24 F17 N O5 S

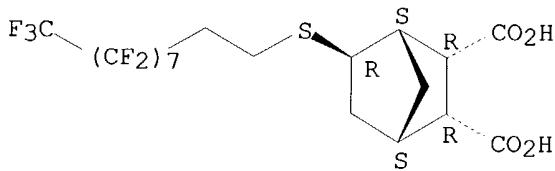
CCI IDS

CM 3

CRN 62731-97-9

CMF C19 H15 F17 O4 S

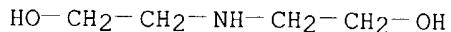
Relative stereochemistry.



CM 4

CRN 111-42-2

CMF C4 H11 N O2



IT 107269-45-4

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with diethanolamine)

RN 107269-45-4 HCPLUS

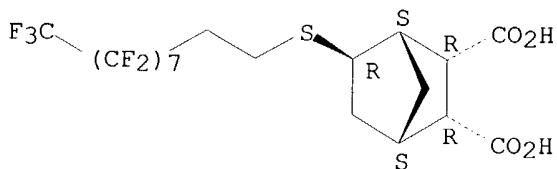
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, 5-
[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10-heptadecafluorodecyl)thio]-,
monomethyl ester, (2-endo, 3-endo, 5-exo)- (9CI) (CA INDEX NAME)

CM 1

CRN 62731-97-9

CMF C19 H15 F17 O4 S

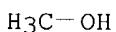
Relative stereochemistry.



CM 2

CRN 67-56-1

CMF C H4 O



L21 ANSWER 9 OF 11 HCPLUS COPYRIGHT 2004 ACS on STN

AN 1978:106017 HCPLUS

DN 88:106017

ED Entered STN: 12 May 1984

TI Reacting isocyanates

IN Kresta, Jiri Erik; Shen, Chen Shyan

PA Dow Chemical Co., USA

SO Ger. Offen., 43 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C08G018-00

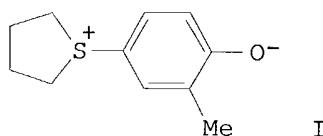
CC 35-4 (Synthetic High Polymers)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2726779	A1	19771222	DE 1977-2726779	19770614
	US 4111914	A	19780905	US 1976-695897	19760614
	NL 7706477	A	19771216	NL 1977-6477	19770613
	NL 186251	B	19900516		

NL 186251	C 19901016			
BE 855667	A1 19771214	BE 1977-178427	19770614	
JP 52156801	A2 19771227	JP 1977-70385	19770614	
FR 2355040	A1 19780113	FR 1977-18232	19770614	
FR 2355040	B1 19800411			
AU 7726073	A1 19781221	AU 1977-26073	19770614	
AU 512046	B2 19800918			
CA 1071202	A1 19800205	CA 1977-280492	19770614	
GB 1586595	A 19810325	GB 1977-24761	19770614	
US 4220728	A 19800902	US 1978-890153	19780327	
US 4288562	A 19810908	US 1980-144737	19800428	
PRAI US 1976-695897	19760614			
US 1978-890153	19780327			

GI



AB Reactions of isocyanates with themselves, other isocyanates, or active-H compds. are catalyzed by arylsulfonium ar-oxides. For example, 712.6 parts PAPI 105 (P-containing polyisocyanate) was added to a mixture of Isonol 36 50, CFC13 80, and Silicone DC 193 10 parts and the resulting solution was treated with 12 parts initiator I [33127-79-6] in 50 parts polyethylene glycol of OH number 563.8 to give a foam with cream time 4 s, rise time 14 s, and tack-free time 14 s. After being cured 24 h at 100° and 1 wk at room temperature the rigid foam had d. 0.0338 g/cm3, brittleness 15.87%, and compressive strength 1.44 and 1.56 kg/cm2 parallel and at right angles to the direction of rise, resp.

ST isocyanate reaction catalyst; arylsulfonium oxide catalyst; polymn catalyst isocyanate; polyurethane foam

IT Polymerization catalysts
(arylsulfonium oxides, for isocyanates)

IT Rubber, urethane, preparation
Urethane polymers, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of, catalysts for)

IT 33127-77-4 33127-79-6 33127-80-9 65292-51-5 65717-82-0
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for polymerization of isocyanates)

IT 584-84-9DP, partially trimerized, polymers with polyether polyols 9082-00-2DP, polymer with Niax 34-28 and partially trimerized TDI 39289-81-1DP, polymer with Niax 11-34 and partially trimerized TDI 65876-35-9P **65876-38-2P**
RL: PREP (Preparation)
(cellular, manufacture of, catalysts for)

IT 9017-01-0P 27616-41-7P 28182-81-2P 32010-01-8P 55637-24-6P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of, catalysts for)

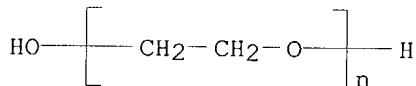
IT 67-63-0, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with hexamethylene diisocyanate, catalysts for)

IT 71-23-8, reactions 7732-18-5, reactions

IT RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with phenyl isocyanate, catalysts for)
IT 64-17-5, reactions
IT RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with tolylene diisocyanate, catalysts for)
IT 103-71-9, uses and miscellaneous 822-06-0 26471-62-5
IT RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions of, catalysts for)
IT 25190-06-1DP, polymer with partially trimerized TDI
IT RL: PREP (Preparation)
(rubber, manufacture of, catalysts for)
IT 65876-38-2P
IT RL: PREP (Preparation)
(cellular, manufacture of, catalysts for)
RN 65876-38-2 HCPLUS
CN Isocyanic acid, polymethylenepolyphenylene ester, polymer with
 α -hydro- ω -hydroxypoly(oxy-1,2-ethanediyl) and methyloxirane
polymer with oxirane 1,4,5,6,7,7-hexachlorobicyclo[2.2.1]heptane-2,3-
dicarboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3
CMF (C₂ H₄ O)_n H₂ O
CCI PMS



CM 2

CRN 9016-87-9
CMF Unspecified
CCI PMS, MAN

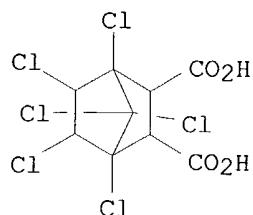
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 68439-27-0
CMF C₉ H₆ Cl₆ O₄ . x (C₃ H₆ O . C₂ H₄ O)_x

CM 4

CRN 2424-95-5
CMF C₉ H₆ Cl₆ O₄

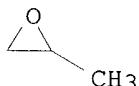


CM 5

CRN 9003-11-6
CMF (C₃ H₆ O . C₂ H₄ O)x
CCI PMS

CM 6

CRN 75-56-9
CMF C₃ H₆ O



CM 7

CRN 75-21-8
CMF C₂ H₄ O



L21 ANSWER 10 OF 11 HCPLUS COPYRIGHT 2004 ACS on STN
AN 1973:516480 HCPLUS
DN 79:116480
ED Entered STN: 12 May 1984
TI Surfactants containing terpenyl groups. IV. Synthesis and surface activity of anionic and nonionic surfactants from Diels-Alder adducts of alkyl isobornyl maleate with various dienes
AU Matsubara, Yoshiharu; Yamamoto, Shigemi; Minematsu, Wasaku; Adachi, Akemi; Kono, Nobuki
CS Fac. Sci. Technol., Kinki Univ., Higashi-Osaka, Japan
SO Yukagaku (1973), 22(6), 311-15
CODEN: YKGKAM; ISSN: 0513-398X
DT Journal
LA Japanese
CC 46-3 (Surface Active Agents and Detergents)
Section cross-reference(s): 30
AB Fifteen anionic surfactants were prepared by heating and stirring (at 100.deg. for 4-8 hr) mixts. of sodium hydrogen sulfite [7631-90-5] and

Diels-alder adducts prepared from alkyl isobornyl maleates (alkyl = Et, Bu, or 2-ethylhexyl) and 1,3-butadiene [106-99-0], isoprene [78-79-5], cyclopentadiene [542-92-7], 1,3-p-menthadiene [99-86-5], or alloocimene [673-84-7]. Thirty nonionic surfactants were prepared by heating and stirring (at 60.deg. for 8 hrs) mixts. of **polyethylene** glycol [25322-68-3] (mol. weight 400 and 600) and the same adducts. Some of the surface properties of the anionic and nonionic surfactants prepared were comparable with those of Aerosol OT [577-11-7] and ABS, and Na (linear alkyl)benzenesulfonate, resp.

ST bisulfite addn isobornyl maleate; **polyethylene** glycol isobornyl maleate; anionic surfactant prepn property; nonionic surfactant prepn property; terpenyl surfactant prepn property; alkyl isobornyl maleate surfactant

IT Surface activity
(of cyclohexanedicarboxylate derivs.)

IT 51197-80-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 39775-88-7 39776-54-0 39776-56-2 39873-62-6 50622-15-6
50622-16-7 50769-48-7 50769-49-8 50769-51-2 50769-64-7
50769-65-8 50875-14-4 50875-15-5 50875-20-2 50928-29-5
RL: PRP (Properties)
(properties of)

IT 25322-68-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with cyclohexenedicarboxylates)

IT 7631-90-5
RL: USES (Uses)
(sulfonation with, of cyclohexanedicarboxylates)

IT 50769-53-4 50769-54-5 50769-56-7 50769-57-8 **50769-59-0**
50769-60-3 50769-62-5 50769-63-6 50875-16-6 50875-17-7
50875-18-8 50875-19-9 51160-78-2 51160-79-3 51160-80-6
51160-82-8 51160-83-9 51178-37-1 51178-48-4 **51178-50-8**
51178-51-9 **51178-52-0** 51178-54-2 51178-55-3
51178-56-4 51212-83-0 51261-76-8 51261-77-9 51262-45-4
RL: PRP (Properties)
(surface activity of)

IT **50769-59-0** **50769-60-3** **50875-18-8**
51178-50-8 **51178-51-9** **51178-52-0**
RL: PRP (Properties)
(surface activity of)

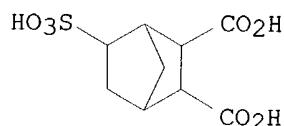
RN 50769-59-0 HCPLUS

CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, 5-sulfo-, 2(or 3)-butyl 3(or 2)-exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, sodium salt (9CI)
(CA INDEX NAME)

CM 1

CRN 50769-58-9

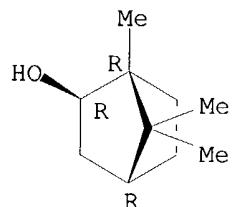
CMF C9 H12 O7 S



CM 2

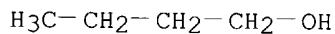
CRN 124-76-5
CMF C10 H18 O

Relative stereochemistry.



CM 3

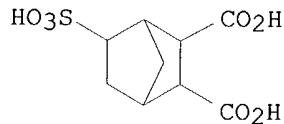
CRN 71-36-3
CMF C4 H10 O



RN 50769-60-3 HCPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, 5-sulfo-, 2(or 3)-octyl 3(or 2)-exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, sodium salt (9CI)
(CA INDEX NAME)

CM 1

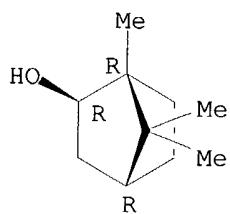
CRN 50769-58-9
CMF C9 H12 O7 S



CM 2

CRN 124-76-5
CMF C10 H18 O

Relative stereochemistry.



CM 3

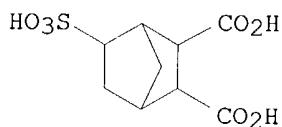
CRN 111-87-5
CMF C8 H18 O

HO—(CH₂)₇—Me

RN 50875-18-8 HCPLUS
CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid, 5-sulfo-, 2(or 3)-ethyl 3(or 2)-exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, sodium salt (9CI)
(CA INDEX NAME)

CM 1

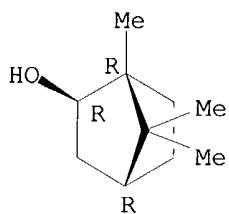
CRN 50769-58-9
CMF C9 H12 O₇ S



CM 2

CRN 124-76-5
CMF C₁₀ H₁₈ O

Relative stereochemistry.



CM 3

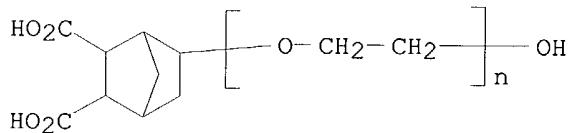
CRN 64-17-5
CMF C2 H6 O

H₃C—CH₂—OH

RN 51178-50-8 HCPLUS
CN Poly(oxy-1,2-ethanediyl), α -(5,6-dicarboxybicyclo[2.2.1]hept-2-yl)- ω -hydroxy-, ethyl 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-(9CI) (CA INDEX NAME)

CM 1

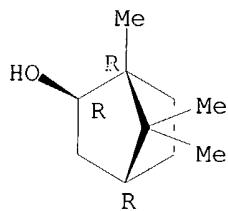
CRN 51178-49-5
CMF (C₂ H₄ O)_n C₉ H₁₂ O₅
CCI PMS



CM 2

CRN 124-76-5
CMF C₁₀ H₁₈ O

Relative stereochemistry.



CM 3

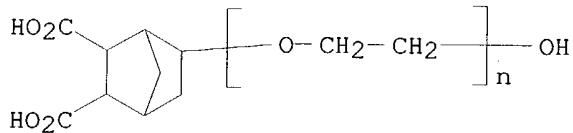
CRN 64-17-5
CMF C₂ H₆ O

H₃C—CH₂—OH

RN 51178-51-9 HCPLUS
CN Poly(oxy-1,2-ethanediyl), α -(5,6-dicarboxybicyclo[2.2.1]hept-2-yl)- ω -hydroxy-, butyl 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-(9CI) (CA INDEX NAME)

CM 1

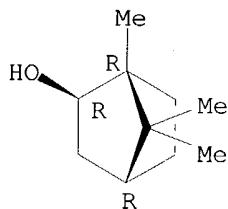
CRN 51178-49-5
CMF (C₂ H₄ O)_n C₉ H₁₂ O₅
CCI PMS



CM 2

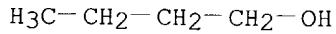
CRN 124-76-5
CMF C₁₀ H₁₈ O

Relative stereochemistry.



CM 3

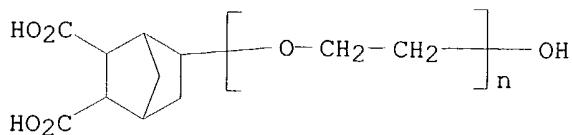
CRN 71-36-3
CMF C₄ H₁₀ O



RN 51178-52-0 HCPLUS
CN Poly(oxy-1,2-ethanediyl), α -(5,6-dicarboxybicyclo[2.2.1]hept-2-yl)- ω -hydroxy-, octyl 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-(9CI) (CA INDEX NAME)

CM 1

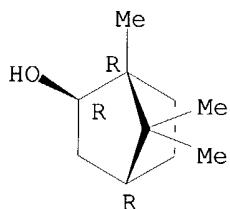
CRN 51178-49-5
CMF (C₂ H₄ O)_n C₉ H₁₂ O₅
CCI PMS



CM 2

CRN 124-76-5
CMF C10 H18 O

Relative stereochemistry.



CM 3

CRN 111-87-5
CMF C8 H18 OHO-(CH₂)₇-Me

L21 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1965:420232 HCAPLUS
 DN 63:20232
 OREF 63:3600f-g
 ED Entered STN: 22 Apr 2001
 TI Thin-layer chromatography of dicarboxylic acids. IV. Combination of thin-layer chromatographic systems for the identification of individual components in dicarboxylic acid mixtures
 AU Knappe, E.; Rohdewald, I.
 CS Glasurit-Werke M. Winkelmann A.-G., Hiltrup, Germany
 SO Zeitschrift fuer Analytische Chemie (1965), 210(3), 183-93
 CODEN: ZANCA8; ISSN: 0372-7920
 DT Journal
 LA Unavailable
 CC 2 (Analytical Chemistry)
 AB cf. CA 58, 5021b. Mixts. of dicarboxylic acids can usually be analyzed by thin-layer chromatography with one of the following systems: (1) **polyethylene** glycol in kieselguhr with 90:7:3 iso-Pr₂O-HCOOH-H₂O; (2) polyamide powder with 50:20:20:8:1 iso-Pr₂O-petr. ether-CCl₄-HCOOH-H₂O; (3) polyamide with 90:10:10 MeCN-EtOAc-HCOOH; (4) polyamide with 90:10:10 HCOOBu-EtOAc-HCOOH; and (5) silica gel with 90:7:3 iso-Pr₂O-HCOOH-H₂O. Widely separated R_f values can be effected by hydrogenation to yield addnl.

sepns. where appropriate.

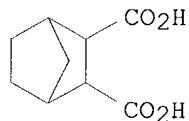
IT Acids
(in body fluids, chromatography of dicarboxylic)

IT 77-92-9, Citric acid 87-69-4, Tartaric acid 88-98-2,
4-Cyclohexene-1,2-dicarboxylic acid 88-99-3, Phthalic acid 97-65-4,
Succinic acid, methylene- 100-21-0, Terephthalic acid 110-15-6,
Succinic acid 110-16-7, Maleic acid 110-17-8, Fumaric acid 110-94-1,
Glutaric acid 111-16-0, Pimelic acid 111-20-6, Sebamic acid
115-28-6, 5-Norbornene-2,3-dicarboxylic acid, 1,4,5,6,7,7-hexachloro-
121-91-5, Isophthalic acid 123-99-9, Azelaic acid 124-04-9, Adipic
acid 141-82-2, Malonic acid 144-62-7, Oxalic acid 498-21-5, Succinic
acid, methyl- 498-23-7, Citraconic acid 498-24-8, Mesaconic acid
505-48-6, Suberic acid 528-44-9, 1,2,4-Benzenetricarboxylic acid
632-58-6, Phthalic acid, tetrachloro- 1687-30-5, 1,2-
Cyclohexanedicarboxylic acid 1724-02-3, Glutaconic acid
1724-08-9, 2,3-Norbornanedicarboxylic acid 3813-52-3,
5-Norbornene-2,3-dicarboxylic acid 6915-15-7, Malic acid 27044-05-9,
1,2,4,5-Benzenetetracarboxylic acid, butyl ester
(chromatography of)

IT **1724-08-9**, 2,3-Norbornanedicarboxylic acid
(chromatography of)

RN 1724-08-9 HCPLUS

CN Bicyclo[2.2.1]heptane-2,3-dicarboxylic acid (9CI) (CA INDEX NAME)



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